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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION SERIAL NO: 07/641,394	GROUP ART UNIT: 1104
FILED: January 15, 1991	EXAMINER: A. Skapars
PATENTEE: Gary R. Tucholski	DATE: March 17,1993
FOR: BATTERY WITH TESTER LABEL	

BOARD OF PATENT APPEALS & INTERFERENCES APR - 1 1993

TRANSMITTAL LETTER ACCOMPANYING PROTEST UNDER RULE 291(a)

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

The following documents are transmitted herewith for appropriate action by the Patent and Trademark Office:

1. Protest Under 37 CFR 1.291(a) by Strategic Energy Ltd.;
2. Certificate of Service;
3. Form PTO-1449 and a copy of each of the cited references; and;
4. Return postcard.

The Commissioner is hereby authorized to charge any fee deficiency, or credit any overpayment, to Deposit Account No. 04-0566. A duplicate copy of this letter is enclosed.

Respectfully submitted,

DeLIO & PETERSON

Peter W. Peterson
Reg. No.: 31,867
Attorney for Protestor
STRATEGIC ENERGY, LTD.

EXPRESS MAILING

"Express Mail" mailing label number RB467613949 Date of Deposit: 3/17/93
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D. C. 20231.

Name: Peter W. Peterson

Signature:

STR901TL/3/93

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Tucholski	
Serial No.: 07/641,394	Group Art Unit: 1104
Filed: January 15, 1991	Examiner: A. Skapars
For: BATTERY WITH TESTER LABEL	Date: March 17, 1993

PROTEST UNDER 37 CFR 1.291(a)

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Strategic Energy Ltd., having an address of 18400 Von Karman Drive, Suite 580, Irvine, California 92715, does hereby protest the above-identified application pursuant to 37 CFR 1.292(a) on the grounds that the subject matter of said application is not patentable under 35 USC §§ 102 and 103 in view of certain prior art references. As a consequence thereof, the grant by the United States Patent and Trademark Office of a patent to the applicant of the above-identified application would be contrary to the public interest. Strategic Energy Ltd. is the owner of pending reissue application serial no. 07/963,915 and application serial no. 07/963,768, and has requested institution of interference proceedings with U.S. Patent No. 5,059,895 to Cataldi et al., issued October 22, 1991.

Attached hereto in accordance with 37 CFR 1.291(a) is proof of service of the protest upon Randall G. Litton, of Price, Heneveld, Cooper, DeWitt and Litton, 695 Kenmoore, S.E., P.O. Box 2567, Grand Rapids, Michigan 49501, counsel to applicant of the above-identified application.

Submitted herewith in accordance with 37 CFR 1.291(b) are: (1) a listing on the accompanying form PTO-1449 of the patents, publications and other information relied upon; (2) a concise explanation of the relevance of each of the listed items and (3) a copy of each listed patent or publication or other items of information in written form or at least pertinent portions thereof. Also included herewith are: (4) a detailed comparison of Tucholski claims with all cited references, designated as Exhibit A, and (5) a true and exact copy of the Declaration of Robert A. Powers, which attests to the inherency in the Burroughs et al. patent of subject matter that has been claimed in the Tucholski application. The original Declaration of Robert A. Powers was previously submitted with U.S. Serial Nos. 963,768 and 963,915, filed October 20, 1992.

The Subject Matter of the Application

U.S. Application Serial No. 641,394 of Tucholski, filed January 15, 1991 discloses a battery having a label and a tester therefor, characterized in that the tester forms a part of the label, and comprises a circuit whose ends contact the terminals of the battery. A portion of the circuit between the two ends has a predetermined resistance. An indicator is associated with the area of resistance and is activated by a current flowing through this area. When activated, the indicator gives an indication of the remaining power in the battery.

The Claims

Applicant of the Tucholski application has requested to have an Interference declared between its present application and U.S. Patent 5,059,895, granted October 22, 1991, to Cataldi et al. Claims 54-70 of the Tucholski application are copied from the '895 patent.

The ensuing analysis of claims 54-70 of the Tucholski application will clearly show that the essential elements claimed in Tucholski are anticipated by U.S. Patent No. 5,015,544 issued May 14, 1991 to Burroughs et al. or obvious to one of ordinary skill in the art from Burroughs et al. in view of U.S. Patent No. 4,723,656 issued February 9, to Kiernan et al. and/or U.S. Patent No. 4,737,020 issued April 12, 1988 to Parker.

I. Independent Claims of Tucholski

A. Battery Label Having Integral Voltmeter

Claims 54 and 55 are directed to "a label comprising an integral voltmeter." Claims 62 and 63 are directed to "a battery having a label with an integral voltmeter." Burroughs et al. teaches, inter alia, "an improved battery having a built-in strength indicator device for determining the ... voltage ... of the battery." (Column 1, lines 10-12). As shown in Figs. 1, 1A and 2, the "indicator device 10 is attached to the side of the battery." (Column 6, lines 17-18). Kiernan et al. discloses a battery package having a liquid crystal battery condition indicator which may be placed in contact with the terminals of a battery carried in the package. Fig. 1 shows "a blister card package 10 for the sale and display of batteries having voltage indicating means 20" integral with the package. The ... package is comprised of a backing member 11 and a bubble member 12 ... [T]he voltage indicating

strip 20 [is located] on the inside surface of the bubble member 12 ... ." (Column 3, lines 24-32). Parker discloses a battery tester in the form of a flexible strip having a cholesteric liquid crystal layer for indicating the charge of the battery. Figs. 2-7A show various embodiments of the battery tester.

B. Dielectric Layer

Each of the above-identified independent claims of Tucholski claims a "dielectric layer" and a "conductive layer" that contacts the dielectric layer. Claims 55 and 63 further claim "one or more substrate layers for the label." Burroughs et al. discloses in Fig. 3 a "conductive layer or lead 14 sandwiched between the first and second [non-conductive] layers." (Column 6, lines 31-33). "Non-conductive", taken in the normal understanding of the word means resistant to the transmission of heat or electricity. Kiernan et al. discloses in Figs. 2 and 3 "voltage indicator strip 20" which comprises a non-conductive substrate and an "electrically resistant element 24." (Column 3, lines 51-64). Kiernan et al. also discloses a non-conductive bubble member that has on its inside surface the above-mentioned "voltage indicating strip." (Column 3, lines 24-33). Parker discloses in Figs. 2 and 3 "two separate conductive material patterns 10 and 10' which are deposited on a transparent substrate or film" (Column 5, line 60-Column 6, line 2). Parker further discloses in Fig. 5 an alternate embodiment in which "the [battery] tester 40 comprises a flexible, transparent substrate 41 having deposited on one side thereof a conductive pattern 42 for a 9 volt battery, a silk screen printed insulative layer 43, and a conductive pattern 44 for a 1.5 volt battery." (Column 9, lines 12-17).

C. Temperature Sensitive Color Indicator Layer

Each of the above-identified independent claims of Tucholski claims "a temperature sensitive color indicator layer in thermal contact with the conductive layer ... [wherein] ... the conductive layer has... sufficient heat generating capacity to effect a change in the temperature sensitive color indicator layer..." Burroughs et al. discloses a heat sensitive "pyrotechnic chemical" that is deposited on the conductive layer. "Surrounding the pyrotechnic chemical is a color indicating, heat-sensitive material 70 which will undergo a visible color change, either permanent or temporary, when the material is heated to at least a predetermined temperature." (Column 8, lines 35-41 and Fig. 10). "[C]urrent flow ... through the conductive layer will raise the area to a predetermined temperature which will cause the pyrotechnic chemical to ... react. The pyrotechnic chemical in turn will raise the temperature of the color-indicating, heat sensitive material to the predetermined temperature for color change." (Column 8, lines 47-54). "Alternatively, the [indicator] device can be fabricated without the pyrotechnic chemical, relying on the color-indicating, heat-sensitive material alone to indicate whether the battery has a predetermined minimal voltage output." (Column 8, lines 62-66). Kiernan et al. discloses that the "voltage indicating strip 20" includes "a liquid crystal layer 31 ... in thermal contact with ... electrically resistive element 24." (Column 3, lines 64-68 and Figs. 2-3). "When current flows through resistive element 24 it heats up and this heat passes to the liquid crystal material 31 which indicates battery condition by color change." (Column 4, lines 6-9). Parker discloses in Figs. 2 and 3 "layers 18 and 18' of a cholesteric liquid crystal material [that] are deposited on the side

of substrate 15 opposite to that on which the conductive layer or patterns 10 and 10' are deposited and in alignment with the conductive patterns." (Column 6, lines 53-57). "When a current passes through the conductive material pattern, a temperature gradient is generated ... . The heat generated is transferred ... to the liquid crystal material layer which changes color ... ." (Column 3, lines 35-40).

D. Insulating Layer

Each of the above-identified independent claims of Tucholski claims thermal insulation under one of the surfaces of the conductive layer that is "sufficient...to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conductive [conducting] battery housing... ." Tucholski, however, does not give any specific definition of the claimed term "sufficient...to overcome heat sinking" which would exclude well known non-conductive layers which would inherently have the ability to resist or overcome heat sinking. Burroughs et al. discloses in Figs. 3, 4, 5 and 10 a non-conductive base layer 30 for the voltmeter strip which, taken the normal understanding of the word "non-conductive", is resistant to transmission of heat or electricity. (Column 2, line 68; Column 7, lines 10-16; Column 8, lines 28-31). The non-conductive base layer 30 inherently overcomes heat sinking since the color-indicating, heat sensitive material 70 is heated by the conductive layer to a "predetermined temperature for color change." (Column 8, lines 52-54). Kiernan et al. discloses a gap that is located between the battery and electrically resistive element 24 in Fig. 4 which "prevents the battery from acting as a heat sink for the resistive element which would prevent heat transfer to the liquid crystal." (Column 5, lines 60-

67). Parker discloses in Fig. 5 the depositing of "protective non-conductive films 45 and 51 over the areas of the conductive patterns 44 except at contact points 47 and over the liquid crystal layer 50 ... This provides environmental and insulative protection for the patterns 44." (Column 10, lines 41-47).

E. Electrical Switch

Claims 54, 55, 62, and 63 of Tucholski claim "means for forming an electrical switch with the electrically conductive battery housing." Burroughs et al. discloses in Figs. 5, 6, 7, 8, 9 and 14 various embodiments of switches integral with the voltmeter strip for forming a switch with the electrically conductive battery housing terminals. "[T]he battery will include a switch means adapted in an 'on' position to electrically connect and complete a circuit between the battery and the indicator means." (Column 2, lines 63-66).

II. Dependent Claims of Tucholski.

Claim 60 is directed to "a graphics layer having a scale calibrated for voltage or current is included below or alongside the color indicator layer." Parker discloses in Fig. 2 "a plurality of scale sections or segments located adjacent to the edges of absorber ... layer 19 ... ." (Column 7, lines 24-28). The scale sections "may include a separately colored portion ... to indicate ... battery ... condition." (Column 7, lines 46-49). The scale segments are marked in voltage increments on an outwardly increasing scale from zero (0) to full battery voltage. (Column 7, lines 37-42).

Claims 56 and 64 are directed to a "dielectric layer [which] also serves as the label." Burroughs et al. discloses an integral voltmeter for a battery as a strip made of a series of layers applied to the battery housing. The integral

voltmeter has an indicator chamber, cell or bubble formed in the strip and "is attached to the side of the battery ... ." (Column 1, lines 11-12; Column 6, lines 17-18). Kiernan et al. discloses in Fig. 1 "a blister card package 10 for the sale and display of batteries having voltage indicating means 20 integral with the package. The ... package is comprised of a backing member 11 and a bubble member 12 ... [T]he voltage indicating strip 20 [is located] on the inside surface of the bubble member 12[.] [T]he bubble member is preferably made of transparent material." (Column 3, lines 24-33). Parker discloses in Fig. 5 "a calibrated scale 48 to represent voltage or battery condition [that] is deposited on or secured to a side of [flexible, transparent] substrate 41." (Column 9, lines 27-30).

Claims 57 and 65 are directed to "one or more layers [that] are included for labeling purposes between the conductive layer and the color indicator layer." Parker discloses in Fig. 5 a flexible, transparent substrate 41 located between a temperature sensitive liquid crystal material 50 and a conductive layer 42. (Column 9, lines 12-37).

Claim 58 states that "one or both ends of the conductive layer extends beyond one or both edges of the label." Parker discloses in Fig. 2 a conductive layer 13 that extends beyond the edges of a scale label 20-21.

Claims 61 and 70 state that the temperature insulating means is a temperature insulating material. Claim 61 further states that the "temperature insulating material [is] under the conductive layer." Claim 70 further states that "the insulating means is a temperature insulating material between the battery surface and the conductive layer." Burroughs et al. discloses in Figs. 2, 10 and 11 a non-conductive base layer 30 between a

conductive layer 64 and the battery surface. The non-conductive base layer 30 inherently overcomes heat sinking since the color-indicating, heat sensitive material 70 is heated by the conductive layer to "the predetermined temperature for color change." (Column 8, lines 53-54). Kiernan et al. discloses a gap that is located between the battery and electrically resistive element 24 in Fig. 4 which "prevents the battery from acting as a heat sink for the resistive element which would prevent heat transfer to the liquid crystal." (Column 5, lines 60-67). Parker discloses the utilization of "protective non-conductive films" that are deposited over the conductive patterns and provide "environmental and insulative protection for the [conductive] patterns." (Column 10, lines 41-47).

Claim 66 is directed to a conductive layer having ends that are of "sufficient length to make electrical contact with each battery electrode." Claims 59 and 67 are directed to a conductive layer having one or both of its ends or terminals in "registration with...holes in the dielectric layer." Claim 67 further claims that the registration of the terminals of the conductive layer with the holes in the insulative layers forms "membrane electrical switches for activating the voltmeter." Claim is 68 directed to the conductive layer having one end "in electrical contact with one electrode of the battery and the other end has [sic.] tab that extends above or below one of the edges of the label sufficiently to engage the other battery electrode thereby forming an electrical switch." Claim 69 is directed to the conductive layer having one end in electrical contact with one electrode of the battery and the other end form[ing] a tab that extends above or below one of the edges of the label sufficiently to engage the other battery electrode through an

accessory electrical conductor thereby forming an electrical switch." Burroughs et al. discloses in Figs. 5, 6, 7, 8, 9 and 14 various embodiments of switches integral with the voltmeter strip for forming a switch with the electrically conductive battery housing terminals. "[T]he battery will include a switch means adapted in an "on" position to electrically connect and complete a circuit between the battery and the indicator means." (Column 2, lines 63-66). Parker discloses in Fig. 5 insulative layers 43 and 45 that are deposited over conductive patterns 42 and 44. Each insulative layer has holes therein that are aligned with contact points 46 and 47 on conductive patterns 42 and 44, respectively, so that the insulative layers do not cover the contact points thereby providing better electrical contact between the conductive patterns and the terminals of an associated battery to be tested. (See also Column 9, lines 21-27).

Unpatentability of Tucholski

Protester respectfully requests that the Examiner reject independent claims 54, 55, 62, and 63, and dependent claims 56, 61, 64, and 70 of the Tucholski application as being anticipated under 35 USC § 102 by Burroughs et al.

To be considered an anticipatory reference, Burroughs et al. need not duplicate word for word what is stated in the copied claims of Tucholski. "Anticipation can occur when a claimed limitation is 'inherent' or otherwise implicit in the relevant reference." Standard Havens Products Inc. v. Gencor Industries Inc., 21 USPQ 1321, 1328 (Fed. Cir. 1991). As shown in the above-analysis of the Tucholski claims, each element of each copied claim in Tucholski is inherent in the Burroughs et al. patent. The Declaration of Robert

A. Powers further substantiates the inherency in Burroughs et al. of elements of the copied claims in the Tucholski application. Furthermore, Burroughs et al. describes the claimed invention of Tucholski "sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it." In re Spada, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990).

Additionally, Protester respectfully requests that the Examiner reject dependent claims 57-60 and 65-69 of the Tucholski application as being obvious to one of ordinary skill in the art under 35 USC § 103 from Burroughs et al. in view of Kiernan et al. and/or Parker. Burroughs et al., Kiernan et al. and Parker, which are within the same field as the Tucholski invention, are references which one of ordinary skill in the art would have motivation to consider and thus, constitute a prima facie case of obviousness. In re Oetiker, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Furthermore, Burroughs et al., Kiernan et al. and Parker sufficiently teach the subject matter of battery voltage indicators, hence, allowing "one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination or other modification." In re Linter, 173 USPQ 560, 562 (CCPA 1972). Claims in Tucholski that describe features of the invention in great detail are nevertheless obvious in view of the cited prior art, "since claim[s] that [are] narrowly and specifically drawn must still meet requirements of 35 USC § 103." In re Gorman, 18 USPQ2d 1885, 1889 (Fed. Cir. 1991).

Applicant has presented the following proposed Court I as forming the basis for the Interference between its present application and U.S. Patent No. 5,059,895 to Cataldi et al.:

"A label comprising an integral battery voltmeter having:

A) a dielectric layer;
B) a conductive layer above or below the dielectric layer; and
C) a temperature sensitive color indicator layer in thermal contact with the conductive layer, characterized in that 1) the conductive layer has i) sufficient heat generating capacity to affect a change in the temperature sensitive color indicator layer and ii) sufficient thermal insulating means under one of the its surfaces to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conductive housing and
2) the voltmeter includes means for forming an electrical switch with the electrically conductive battery housing."

Applicant has stated in its request for Interference with the Cataldi et al. patent:

> "Proposed Count I corresponds exactly to the patentees' claim 11 of the '895 patent, and corresponds exactly to Applicant's claim 54 presented herein. Applicant submits that claims 1-10 and 12-29 of the '895 patent correspond substantially to the proposed Count I. Applicant further submits that claims 1-8, 10, 12, 15, 16, 18, 21, 22, 24, 25, 28-35, 46-53 and 55-70 of the present application correspond substantially to the proposed Count I."

Applicant further states that:

> "Applicant's claims 1-8, 10, 12, 15, 16, 18, 21, 22, 24, 25, 28-35, 46-53 and 55-70 correspond substantially to proposed Count I because these claims all recite various aspects of the same patentable invention as recited by Count I. Claims 55-61 all recite a label which contains an integral voltmeter. Claims 1-8,10, 12, 15, 16, 18, 21, 22, 24, 25, 28-35, 46-53 and 62-70 all recite a battery having a label which contains a tester similar to the label having an integral voltmeter recited in Count I."

"[A] judgment of unpatentability of claims corresponding to a count extends to all the claims designated as corresponding to that count, absent evidence to show patentable distinctness together with a motion to designate such allegedly distinct claims as not corresponding to the count."

(emphasis added). Brooks v. Street, 16 USPQ2d 1374, 1378 (BPAI 1990). Therefore, Protester respectfully requests that the Examiner also reject claims 1-8, 10, 12, 15, 16, 18, 21, 22, 24, 25, 28-35, 46-53, of the Tucholski application as being anticipated under 35 USC §102 by the Burroughs et al. or obvious to one of ordinary skill in the art from Burroughs et al. in view of the Kiernan et al. and/or Parker patents.

Protester sincerely believes it has made a conclusive showing of prima facie unpatentability of the Tucholski application. Therefore, the Examiner is respectfully requested to reject the above-identified pending claims in the Tucholski application as anticipated and/or obvious over the cited prior art.

Respectfully submitted,

DeLIO & PETERSON

Peter W. Peterson
Attorney for Protester
Reg. No.: 31,867

"Express Mail" mailing label no. RB46761394
Date of Deposit 3/17/93
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Address" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington D.C. 20231
Name: Peter W. Peterson
Signature:

CERTIFICATE OF SERVICE

The accompanying "Protest Under 37 CFR 1.291(a)" was served on Randall G. Litton, of Price, Heneveld, Cooper, DeWitt and Litton, 695 Kenmoore, S.E., P. O. Box 2567, Grand Rapids, Michigan 49501 by first class mail, postage prepaid, on the 17th day of March, 1993.

Peter W. Peterson

str901pt/3/93

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: James R. Burroughs and Alan N. O'Kain Serial No: 308,210 Filed: February 8, 1989 For: BATTERY STRENGTH INDICATOR Reissue of U.S. Patent No: 5,015,544 Issued: May 14, 1991	Art Unit: 114 Examiner:

Commissioner of Patents and Trademarks
Washington, D. C. 20231

DECLARATION OF ROBERT A. POWERS

Dear Sir:

I, Robert A. Powers, declare as follows:

1. I am a citizen of the United States residing in Lakewood, Ohio.

2. In 1951, I received a Ph.D degree in physical chemistry from the University of Texas at Austin. In the period of 1951 to 1985, I was employed by Union Carbide Corporation in various technical capacities in the Eveready Battery Division, which Union Carbide owned at the time. During that time period, I had direct experience with all phases of battery technology, including battery construction and electrochemistry. At the time of my retirement from Union Carbide in 1985, I held the position of Director of Technology for the Eveready Battery Division. From 1985 to 1990, I was Executive Director of the Edison Sensor Technology Center at Case Western Reserve University in Cleveland, Ohio. Since 1990, I have been a principal of Powers & Associates, consultants in battery technology and applications. In my career, I have received over a dozen U.S. patents on various aspects of battery technology.

3. I have reviewed U.S. Patent No. 5,015,544 issued on May 14, 1991 to James R. Burroughs and Alan N. O'Kain. As I understand it, the patent discloses various embodiments of battery strength indicating and switch means which may be applied directly to the side of a battery, such as a typical dry cell battery of the type shown in Fig. 2 of the patent.

4. I have reviewed in particular the embodiment of the battery strength indicator shown in Fig. 10 of the Burroughs et al. patent and described in the specification in column 1, lines 21-38 and column 8, line 26 through column 9, line 3. As I understand this embodiment of the battery strength indicator, first and second nonconductive strips or layers 30 and 32 are applied to the side of the battery housing (Fig. 2). Sandwiched between the nonconductive layers is a conductive layer 64 which has a reduced cross sectional area 65 in a sealed chamber or indicator zone 66. In contact with the conductive layer is either a color indicating heat sensitive material 70, a pyrotechnic chemical 68, or the color indicating heat sensitive material in combination with the pyrotechnic chemical. As described in the Burroughs et al. patent, when this embodiment of the battery strength indicator is electrically connected across the terminals of the battery, current flows through the conductive layer 64. Because the conductive layer is reduced to a small cross section 65 in the indicator zone 66, the resistance of which is selected such that current flow at a minimum predetermined voltage will raise the area 65 to a predetermined temperature, the heat generated by the conductive layer raises the temperature of the color indicating heat sensitive material to a predetermined temperature for color change to indicate the voltage or strength of the battery.

5. As I understand it, in order for this embodiment to be operable when applied to the side of a dry cell battery, the construction of the battery strength indicator, including the nonconductive layers, must be such to permit sufficient heat generated by the reduced cross section conductive area 65 to flow to the color indicator material to cause a color change. Heat generated by the reduced section conductive area 65 is within the sealed chamber or zone 66 adjacent to nonconductive layers 30 and 32, and will naturally desire to flow in all

directions from reduced cross sectional conductive area 65. As such, it is the natural result of such construction that the nonconductive layer (30 or 32) adjacent to the battery housing, along with any portion of the sealed chamber or zone 66 beneath the conductive area 65, has sufficient thermal insulation to overcome heat sinking when the battery strength indicator is in contact with the battery housing. The reference to repeated use of this embodiment of the battery strength indicator at column 9, lines 1-3 also requires that heat sinking to the battery housing be overcome by the thermal insulation beneath the conductive area 65 of layer 64.

6. In connection with the battery housing, dry cell batteries of the type shown in Fig. 2 of Burroughs et al. patent and described elsewhere as nonrechargeable alkaline batteries (column 11, line 42) or zinc-carbon batteries (column 12, line 63) all have electrically conductive housings. In a case of alkaline dry cells, the side of the housing is the part of the cathode. In the case of zinc-carbon batteries, the side of the housing is part of the anode. Thus, I believe that the Burroughs et al. patent inherently discloses that the dry cell battery housing is electrically conductive.

7. In the specification and claims of the Burroughs et al. patent, the term "thermally" is not used to specifically describe the nonconductive properties of layers 30 or 32, and, conversely, nowhere is the term "nonconductive layer" specifically limited to electrically nonconductive materials. However, it is my opinion that a person of ordinary skill in the art pertaining to battery construction, when reading the Burroughs et al. patent, would understand that, at least in connection with the embodiment of the battery strength indicator depicted in Fig. 10, the term "nonconductive layer" refers to both thermally and electrically nonconductive. This would be inherently understood because of the fact that, for the strength

indicator to operate as described, one would require thermal insulation in order for the heat from the reduced section area 65 to flow to the heat sensitive material 70, as well as electrical insulation in order to prevent the current flowing through conductive layer 64 and reduced section 65 to short circuit against the battery housing.

8. The various dictionaries that I have consulted, including the Dictionary of Physics, define the term "conductor" or "conductive" as including both thermal conductivity and electrical conductivity. Therefore, the opposite term "nonconductive" would necessarily encompass both thermal insulation and electrical insulation properties, unless specifically limited to one or the other. This inclusive definition of "nonconductive" is supported by my experience that the vast majority of nonconductive materials display both thermal and electrical insulating properties. It is my opinion that a person having ordinary skill in the art relating to battery construction would necessarily select a nonconductive material which would have both thermal insulating and electrical insulating properties, without undue experimentation.

9. For the reasons given above, it is my opinion that the Burroughs et al. patent inherently discloses that the conductive layer of the battery strength indicator embodiment disclosed in connection with Fig. 10 has sufficient thermal insulating means under its surface to overcome heat sinking when the strength indicator is in contact with a battery having an electrically conductive housing.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: October 8, 1992

Robert A. Powers

Robert A. Powers, Ph.D.

FORM PTO-1449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO.	SERIAL NO.
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	STR 901	07/641,394
(Use several sheets if necesssary)	APPLICANT	
(37 CFR 1.98(b))	TUCHOLSKI	
	FILING DATE	GROUP
	January 15, 1991	1104

U.S PATENT DOCUMENTS

EXAMINER INITIAL		PATENT NUMBER							ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4	7	2	3	6	5	6	2/9/88	Kiernan et al.	206	333	
		4	7	3	7	0	2	0	4/12/88	Parker	350	351	
		5	0	1	5	5	4	4	5/14/91	Burroughs et al.	429	93	

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

		DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS (Including Author, Title, Date**, Relevant Pages, Place of Publication***)

EXAMINER	DATE CONSIDERED

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communiction to applicant.

EXHIBIT A

SHOWING OF PRIMA FACIE UNPATENTABILITY OF TUCHOLSKI U.S. APPLICATION SERIAL NO. 07/641,394

The following patents cited herein are prior art to Tucholski application serial no. 07/641,394, filed January 15, 1991.

Burroughs et al. U.S. Patent No. 5,015,544, filed February 8, 1989, issued May 14, 1991
Parker U.S. Patent No. 4, 737, 020, issued April 12, 1988
Kiernan et al. U.S. Patent No. 4,723,656, issued February 9, 1988

Burroughs et al. is prior art under 35 U.S.C. §102(e). Parker and Kiernan et al. are prior art under 35 U.S.C. §102(a) and (b).

Burroughs et al., Parker and Kiernan et al. are all directed to battery voltage indicators. The Parker patent is directed to layered tester strips which may be held against the battery terminals to determine the strength of the battery. The Kiernan et al. patent is directed to a layered tester contained in a battery package which may be held against the battery terminals to determine the battery voltage. The Burroughs et al. patent is directed to a layered battery voltage or strength indicator strip which is applied to the side of a battery and which incorporates a switch to electrically connect the strength indicator across the terminals of the battery. As such, all three patents are within the same field as the invention claimed in Tucholski. and would be references which one of ordinary skill in the art would have motivation to consider.

The claims of the Tucholski application are anticipated by the Burroughs et al. patent or obvious to one of ordinary skill in the art from Burroughs et al. in view of the Kiernan et al. and/or Parker patents. For the Examiner's convenience, the terms common to various of the Tucholski claims are compared initially with the disclosure of the Burroughs et al. patent, and, following that, a comparison of each claim is made with the disclosures of all the cited references.

I. COMPARISON OF COMMON TERMS IN TUCHOLSKI CLAIMS WITH BURROUGHS ET AL.

<u>TUCHOLSKI CLAIM TERMS</u>	<u>CORRESPONDING BURROUGHS ET AL. DISCLOSURE</u>
• "A label comprising an integral battery voltmeter" (Claims 54 and 55) • "A battery having a label with an integral voltmeter" (Claims 62 and 63)	<u>A.</u> Burroughs et al. discloses an integral voltmeter for a battery as a strip made of a series of layers applied to the battery housing. "[A]n improved battery having a built-in strength indicator device for determining the ... voltage ... of the battery" (Col. 1, lines 11-12) "[A] battery strength indicator device 10 of the present invention is illustrated. The indicator device has an indicator chamber, cell or bubble 12 formed in strip 16" (Col. 6, lines 4-7) and "indicator device 10 is attached to the side of the battery" (Col. 6, lines 17-18) in Figs. 1, 1A and 2.

TUCHOLSKI CLAIM TERMS	CORRESPONDING BURROUGHS ET AL. DISCLOSURE
• "a dielectric layer" (Claims 54, 55, 62, and 63)	B. Burroughs et al. discloses in Fig. 3 non-conductive top and bottom layers for the voltmeter strip which, taken in the normal understanding of the word "non-conductive", are resistant to transmission of heat or electricity. "[A] non-conductive base layer" (Col. 2, line 68), also shown as first layer 30 in Fig. 3, and/or "a non-conductive top layer" (Col. 3, line 1), also shown as the second layer 32 in Fig. 3. "High dielectric constant layer and ... nonconductive layer 30 and 34" shown in Fig. 15 (Col. 10, lines 51-52).
• "a conductive layer" (Claims 55 and 63) • "a conductive layer above or below [...] the dielectric layer" (Claims 54 and 62)	C. Burroughs et al. discloses in Fig. 3 a conductive layer for the voltmeter strip adjacent to the non-conductive top and bottom layers. "[A] conductive layer or lead 14 sandwiched between the first and second [non-conductive] layers" in Fig. 3 (Col. 6, lines 31-33). "Conductive layers 64 are sandwiched between the first and second layers" in Fig. 10 (Col. 8, lines 32-33).
• "one or more substrate layers for the label" (Claims 55 and 63)	D. Burroughs et al. discloses in Fig. 15, layer 30 is between conductive layer 62b and battery strength indicator cell 12 (see description at col. 10, lines 49-67).
• "a temperature sensitive color indicator layer in thermal contact with the conductive layer" (Claims 54 and 62) • "a temperature sensitive color indicator layer" (Claims 55 and 63)	E. Burroughs et al. discloses in Fig. 10, which is a modification of Fig. 3, a temperature sensitive material 70 in thermal contact with the conductive layer. "The conductive layer is reduced to a small cross section 65 in the indicator zone 66. Within the indicator zone, the conductive layer is covered with a small amount of pyrotechnic chemical 68 sensitive to heat. Surrounding the pyrotechnic chemical is a color indicating, heat sensitive material 70 which will undergo a visible color change ... when the material is heated to at least a predetermined temperature" in Fig. 10 (Col 8, lines 33-41)."Alternatively, the device can be fabricated without the pyrotechnical chemical, relying on the color indicating, heat sensitive material alone to indicate whether the battery has a predetermined minimum voltage output." (Col. 8, lines 62-66).

TUCHOLSKI CLAIM TERMS	CORRESPONDING BURROUGHS ET AL. DISCLOSURE
• "characterized in that ... the conductive layer has ... sufficient heat generating capacity to affect a change in the temperature sensitive color indicator layer" (Claims 54, 55, 62 and 63)	F. Burroughs et al. discloses that the conductive layer 64 in Fig. 10 heats the temperature sensitive material 70 when the voltmeter strip is switched on. "The resistance of the conductive layer in the reduced cross-sectional area 65 is selected such that current flow at a minimum predetermined voltage through the conductive layer will raise the area to a predetermined temperature which will cause the pyrotechnic chemical to decompose or otherwise react. The pyrotechnic chemical in turn will raise the temperature of the color-indicating, heat sensitive material to the predetermined temperature for color change." (Col. 8, lines 45-54).
• "characterized in that ... the conductive layer has...sufficient thermal insulating means under one of its surfaces to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conductive[ing] housing" (Claims 54, 55, 62 and 63)	G. Burroughs et al. discloses in Fig. 3 and the modification in Fig. 10 a non-conductive bottom layer 30 for the voltmeter strip which, taken in the normal understanding of the word "non-conductive", is resistant to transmission of heat or electricity. No specific definition of the claimed term "sufficient ... to overcome heat sinking" is given which would exclude well known non-conductive layers, which would inherently have the ability to resist or overcome heat sinking. "The indicator device 10 is attached to the side of the battery" (Col. 6, lines 17-18) in Figs. 1, 1A and 2. "The present invention can be used with a dry cell battery" (Col. 11, lines 37-38), which are well known to have conductive housings. "[A] non-conductive base layer" (Col. 2, line 68) is shown as first layer 30 in Fig. 3, and Fig. 10 shows "the indicator device 10D is a strip like device having first and second superimposed layers 30 and 32 which are attached together in the same manner as strips 30 and 32 in Fig. 3." (Col. 8, lines 28-31). The non-conductive base layer 30 inherently overcomes heat sinking since the color-indicating, heat sensitive material 70 is heated by the conductive layer to "the predetermined temperature for color change" (Col. 8, lines 53-54). Also, longer term heat sinking through the non-conductive base layer 30 is not of concern because, "[i]f the color-indicating, heat sensitive material undergoes a non-permanent color change when exposed to a predetermined temperature [of the conductive layer], then the battery strength indicator device ... can be used repeatedly to determine if the output voltage of the battery meets a predetermined voltage level" (Col. 8, line 66 - col. 9, line 3). See also enclosed Declaration of Robert A. Powers

TUCHOLSKI CLAIM TERMS	**CORRESPONDING BURROUGHS ET AL. DISCLOSURE**
• "means for forming an electrical switch with the electrically conductive battery housing" (Claims 54, 55, 62 and 63)	H. Burroughs et al. discloses in Figs. 5, 6, 7, 8, 9 and 14 various embodiment of switches integral with the voltmeter strip for forming a switch with the electrically conductive battery housing terminals. "[T]he battery will include a switch means adapted in an 'on' position to electrically connect and complete a circuit between the battery and the indicator means." (Col. 2, lines 63-66). "The improved battery 18 of the present invention is illustrated in Fig. 2. The battery has an anode 20 and a cathode at its base ... . The indicator device 10 is attached to the side of the battery, with the ends of the device connected to the anode 20 and the cathode." (Col. 6, lines 15-19). "In an alternative embodiment of the invention, the battery has the indicator device of Fig. 1A, which includes ... a switch 24. The switch is biased to be in an off position, and, thus, the indicator device is only actuated when the switch is on, thus preventing a constant drain on the battery." (Col. 6, lines 23-29). See also various switch embodiments in Figs. 6, 7, 8, 9 and 14.
• "wherein the temperature insulating means is formed by placing a temperature insulating material under the conductive layer" (Claim 61) • "wherein the insulating means is formed by inserting a temperature insulating material between the battery surface and the conductive layer" (Claim 70)	I. Burroughs et al. discloses in Figs. 2, 10 and 11 a non-conductive base layer 30 between conductive layer 64 and the battery surface. The non-conductive base layer 30 inherently overcomes heat sinking since the color-indicating, heat sensitive material 70 is heated by the conductive layer to "the predetermined temperature for color change" (Col. 8, lines 53-54). Also, longer term heat sinking through the non-conductive base layer 30 is not of concern because, "[i]f the color-indicating, heat sensitive material undergoes a non-permanent color change when exposed to a predetermined temperature [of the conductive layer], then the battery strength indicator device ... can be used repeatedly to determine if the output voltage of the battery meets a predetermined voltage level" (Col. 8, line 66 - col. 9, line 3). See also enclosed Declaration of Robert A. Powers.

II. COMPARISON OF TUCHOLSKI CLAIMS WITH ALL CITED REFERENCES

TUCHOLSKI CLAIMS	**DISCLOSURE IN REFERENCES**
54. A label comprising an integral battery voltmeter having:	Burroughs et al. - See disclosure A, above. Kiernan et al. - Voltage indicator strip 20 (Figs 1-5). Parker - Testers shown in Figs. 2-7A.

TUCHOLSKI CLAIMS	DISCLOSURE IN REFERENCES
A) a dielectric layer;	Burroughs et al. - See disclosure B, above. Kiernan et al. - Nonelectrically conductive substrate 21; bubble member 12. Parker - Substrates 15, 41; electrically insulating material 43; nonconductive films 45,51.
B) a conductive layer above or below the dielectric layer; and	Burroughs et al. - See disclosure C, above. Kiernan et al. - Electrically resistive element 24. Parker - Conductive layers 10, 10', 42, 44.
C) a temperature sensitive color indicator layer in thermal contact with the conductive layer,	Burroughs et al. - See disclosure E, above. Kiernan et al. - Liquid crystal layer 31. Parker - Liquid crystal material layer 18, 18', 50.
characterized in that 1) the conductive layer has i) sufficient heat generating capacity to affect a change in the temperature sensitive color indicator layer and	Burroughs et al. - See disclosure F, above. Kiernan et al. - "the liquid crystals are used to detect the surface temperature of the resistive element 24" (Col.4, lines 35-37). Parker - "When a current passes through the conductive material pattern, a temperature gradient is generated ... . The heat generated is transferred ... to the liquid crystal material layer which changes color ... ." (Col. 3, lines 35-40).
ii) sufficient thermal insulating means under one of its surfaces to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conductive housing and	Burroughs et al. - See disclosure G, above. Kiernan et al. - Gap between battery and electrically resistive element 24 in Fig. 4 "prevents the battery from acting as a heat sink for the resistive element which would prevent heat transfer to the liquid crystal" (Col. 5, lines 60-67). Parker - insulative layer 45 (Fig. 5) "provides environmental and insulative protection" (Col. 10, lines 41-46). "Substrate or film 15 composed ... of transparent, high temperature stable, film or support of polyester (such as Dupont's mylar), polycarbonate, polyamide, polysulfone, paper, preferably, fiber or nylon enforced, cellulose, laminates and the like. Other high temperature stable polymers are equally suitable." (Col. 5, line 64 - col. 6, line 2).
2) the voltmeter includes means for forming an electrical switch with the electrically conductive battery housing.	Burroughs et al. - See disclosure H, above.
55. A label comprising an integral battery voltmeter having a plurality of layers in the following order;	Burroughs et al. - See disclosure A, above. Kiernan et al. - Voltage indicator strip 20 (Figs 1-5). Parker - Testers shown in Figs. 2-7A.

TUCHOLSKI CLAIMS	DISCLOSURE IN REFERENCES
A) a dielectric layer;	Burroughs et al. - See disclosure B, above. Kiernan et al. - Nonelectrically conductive substrate 21; bubble member 12. Parker - Substrates 15, 41; electrically insulating material 43; nonconductive films 45,51.
B) a conductive layer;	Burroughs et al. - See disclosure C, above. Kiernan et al. - Electrically resistive element 24. Parker - Conductive layers 10, 10', 42, 44.
C) one or more substrate layers for the label;	Burroughs et al. - See disclosure D, above. Parker - insulative layer 43 (Fig. 5). (Column 9, lines 12-17).
D) a temperature sensitive color indicator layer; and	Burroughs et al. - See disclosure E, above. Kiernan et al. - Liquid crystal layer 31. Parker - Liquid crystal material layer 18, 18', 50.
characterized in that 1) the conductive layer has i) sufficient heat generating capacity to affect a change in the temperature sensitive color indicator layer and	Burroughs et al. - See disclosure F, above. Kiernan et al. - "the liquid crystals are used to detect the surface temperature of the resistive element 24" (Col.4, lines 35-37). Parker - "When a current passes through the conductive material pattern, a temperature gradient is generated .... The heat generated is transferred ... to the liquid crystal material layer which changes color ... ." (Col. 3, lines 35-40).
ii) sufficient thermal insulating means under one of its surfaces to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conducting housing and	Burroughs et al. - See disclosure G, above. Kiernan et al. - Gap between battery and electrically resistive element 24 in Fig. 4 "prevents the battery from acting as a heat sink for the resistive element which would prevent heat transfer to the liquid crystal" (Col. 5, lines 60-67). Parker - insulative layer 45 (Fig. 5) "provides environmental and insulative protection" (Col. 10, lines 41-46). "Substrate or film 15 composed ... of transparent, high temperature stable, film or support of polyester (such as Dupont's mylar), polycarbonate, polyamide, polysulfone, paper, preferably, fiber or nylon enforced, cellulose, laminates and the like. Other high temperature stable polymers are equally suitable." (Col. 5, line 64 - col. 6, line 2).
2) the voltmeter includes means for forming an electrical switch with the electrically conductive battery housing.	Burroughs et al. - See disclosure H, above.

TUCHOLSKI CLAIMS	DISCLOSURE IN REFERENCES
56. The label of claim 54, wherein the dielectric layer also serves as the label.	Burroughs et al. - See disclosure A, above. Parker - "calibrated scale 48 to represent voltage or battery condition is deposited on or secured to a side of substrate 41" (Col. 9, lines 27-29).
57. The label of claim 55 wherein one or more layers are included for labeling purposes between the conductive layer and the color indicator layer.	Parker - substrate 41 is between liquid crystal material 50 and conductive layer 42 (Fig. 5).
58. A label according to claim 57 wherein one or both ends of the conductive layer extends beyond one or both edges of the label.	Parker - conductive layer 13 extends beyond scale label 20-21 (Fig. 2).
59. A label according to claim 54 or 55 wherein one or both ends of the conductive layer are in registration with holes in the dielectric layer.	Parker - "in Fig. 5, holes are shown in [insulative] layers 43 and 45 which cooperate with [conductive layer] contact points 46 and 47 so that the insulation layer does not cover the contact points" (Col. 9, lines 21-24).
60. A label according to any one of claims 54 or 55 wherein a graphics layer having a scale calibrated for voltage or current is included below or alongside the color indicator layer.	Parker - "scale segments 20-23 may be marked in voltage increments" (Col. 7, lines 37-38).
61. A label according to claim 54 or 55 wherein the temperature insulating means is formed by placing a temperature insulating material under the conductive layer.	Burroughs et al. - See disclosure I, above. Parker - insulative layer 45 (Fig. 5)
62. A battery having a label with an integral voltmeter; wherein the voltmeter comprises:	Burroughs et al. - See disclosure A, above. Kiernan et al. - Voltage indicator strip 20 (Figs 1-5). Parker - Testers shown in Figs. 2-7A.
A) a dielectric layer;	Burroughs et al. - See disclosure B, above. Kiernan et al. - Nonelectrically conductive substrate 21; bubble member 12. Parker - Substrates 15, 41; electrically insulating material 43; nonconductive films 45,51.
B) a conductive layer above or below the dielectric layer; and	Burroughs et al. - See disclosure C, above. Kiernan et al. - Electrically resistive element 24. Parker - Conductive layers 10, 10', 42, 44.

TUCHOLSKI CLAIMS	DISCLOSURE IN REFERENCES
C) a temperature sensitive color indicator layer in thermal contact with the conductive layer,	Burroughs et al. - See disclosure E, above. Kiernan et al. - Liquid crystal layer 31. Parker - Liquid crystal material layer 18, 18', 50.
characterized in that 1) the conductive layer has i) sufficient heat generating capacity to affect a change in the temperature sensitive color indicator layer and	Burroughs et al. - See disclosure F, above. Kiernan et al. - "the liquid crystals are used to detect the surface temperature of the resistive element 24" (Col.4, lines 35-37). Parker - "When a current passes through the conductive material pattern, a temperature gradient is generated .... The heat generated is transferred ... to the liquid crystal material layer which changes color ... ." (Col. 3, lines 35-40).
ii) sufficient thermal insulating means under one of its surfaces to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conducting housing and	Burroughs et al. - See disclosure G, above. Kiernan et al. - Gap between battery and electrically resistive element 24 in Fig. 4 "prevents the battery from acting as a heat sink for the resistive element which would prevent heat transfer to the liquid crystal" (Col. 5, lines 60-67). Parker - insulative layer 45 (Fig. 5) "provides environmental and insulative protection" (Col. 10, lines 41-46). "Substrate or film 15 composed ... of transparent, high temperature stable, film or support of polyester (such as Dupont's mylar), polycarbonate, polyamide, polysulfone, paper, preferably, fiber or nylon enforced, cellulose, laminates and the like. Other high temperature stable polymers are equally suitable." (Col. 5, line 64 - col. 6, line 2).
2) the voltmeter includes means for forming an electrical switch with the electrically conductive battery housing.	Burroughs et al. - See disclosure H, above.
63. A battery having a label with an integral voltmeter; wherein the voltmeter comprises a plurality of layers in the following order:	Burroughs et al. - See disclosure A, above. Kiernan et al. - Voltage indicator strip 20 (Figs 1-5). Parker - Testers shown in Figs. 2-7A.
A) a dielectric layer;	Burroughs et al. - See disclosure B, above. Kiernan et al. - Nonelectrically conductive substrate 21; bubble member 12. Parker - Substrates 15, 41; electrically insulating material 43; nonconductive films 45,51.
B) a conductive layer;	Burroughs et al. - See disclosure C, above. Kiernan et al. - Electrically resistive element 24. Parker - Conductive layers 10, 10', 42, 44.

TUCHOLSKI CLAIMS	DISCLOSURE IN REFERENCES
C) one or more substrate layers for the label; and	Burroughs et al. - See disclosure D, above. Parker - insulative layer 43 (Fig. 5).
D) a temperature sensitive color indicator layer,	Burroughs et al. - See disclosure E, above. Kiernan et al. - Liquid crystal layer 31. Parker - Liquid crystal material layer 18, 18', 50.
characterized in that 1) the conductive layer has i) sufficient heat generating capacity to affect a change in the temperature sensitive color indicator layer and	Burroughs et al. - See disclosure F, above. Kiernan et al. - "the liquid crystals are used to detect the surface temperature of the resistive element 24" (Col.4, lines 35-37). Parker - "When a current passes through the conductive material pattern, a temperature gradient is generated .... The heat generated is transferred ... to the liquid crystal material layer which changes color ... ." (Col. 3, lines 35-40).
ii) sufficient thermal insulating means under one of its surfaces to overcome heat sinking when the voltmeter is in contact with a battery having an electrically conducting housing and	Burroughs et al. - See disclosure G, above. Kiernan et al. - Gap between battery and electrically resistive element 24 in Fig. 4 "prevents the battery from acting as a heat sink for the resistive element which would prevent heat transfer to the liquid crystal" (Col. 5, lines 60-67). Parker - insulative layer 45 (Fig. 5) "provides environmental and insulative protection" (Col. 10, lines 41-46). "Substrate or film 15 composed ... of transparent, high temperature stable, film or support of polyester (such as Dupont's mylar), polycarbonate, polyamide, polysulfone, paper, preferably, fiber or nylon enforced, cellulose, laminates and the like. Other high temperature stable polymers are equally suitable." (Col. 5, line 64 - col. 6, line 2).
2) the voltmeter includes means for forming an electrical switch with the electrically conductive battery housing.	Burroughs et al. - See disclosure H, above.
64. The battery of claim 62 wherein the dielectric layer also serves as the label.	Burroughs et al. - See disclosure A, above. Parker - "calibrated scale 48 to represent voltage or battery condition is deposited on or secured to a side of substrate 41" (Col. 9, lines 27-29).
65. The battery of claim 63 wherein one or more layers are included for labeling purposes between the conductive layer and the color indicator layer.	Parker - substrate 41 is between liquid crystal material 50 and conductive layer 42 (Fig. 5).

TUCHOLSKI CLAIMS	DISCLOSURE IN REFERENCES
66. A battery according to claim 62 or 63 wherein the ends of the conductive layer are each of sufficient length to make electrical contact with each battery electrode.	Parker - "in Fig. 5, holes are shown in [insulative] layers 43 and 45 which cooperate with [conductive layer] contact points 46 and 47 so that the insulation layer does not cover the contact points, thereby providing better electrical contact between the conductive patterns 42 and 44 and the terminals of an associated battery to be tested." (Col. 9, lines 21-27).
67. A battery according to claim 62 or 63 wherein one or both terminals of the conductive layers are in registration with different holes in the dielectric layer thereby forming membrane electrical switches for activating the voltmeter.	Burroughs et al. - See disclosure H, above. Parker - "in Fig. 5, holes are shown in [insulative] layers 43 and 45 which cooperate with [conductive layer] contact points 46 and 47 so that the insulation layer does not cover the contact points, thereby providing better electrical contact between the conductive patterns 42 and 44 and the terminals of an associated battery to be tested." (Col. 9, lines 21-27).
68. A battery according to claim 62 or 63 wherein one end [sic.]the conductive layer is in electrical contact with one electrode of the battery and the other end has [sic.] tab that extends above or below one of the edges of the label sufficiently to engage the other battery electrode thereby forming an electrical switch.	Burroughs et al. - See disclosure H, above. Parker - "in Fig. 5, holes are shown in [insulative] layers 43 and 45 which cooperate with [conductive layer] contact points 46 and 47 so that the insulation layer does not cover the contact points, thereby providing better electrical contact between the conductive patterns 42 and 44 and the terminals of an associated battery to be tested." (Col. 9, lines 21-27).
69. A battery according to claim 62 or 63 wherein one of the end [sic.] of the conductive layer is in electrical contact with one electrode of the battery and the other end forms a tab that extends above or below one of the edges of the label sufficiently to engage the other battery electrode through an accessory electrical conductor thereby forming an electrical switch.	Burroughs et al. - See disclosure H, above. Parker - "in Fig. 5, holes are shown in [insulative] layers 43 and 45 which cooperate with [conductive layer] contact points 46 and 47 so that the insulation layer does not cover the contact points, thereby providing better electrical contact between the conductive patterns 42 and 44 and the terminals of an associated battery to be tested." (Col. 9, lines 21-27).
70. A battery according to claim 62 or 63 wherein the insulating means is formed by inserting a temperature insulating material between the battery surface and the conductive layer.	Burroughs et al. - See disclosure I, above. Parker - insulative layer 45 (Fig. 5)